



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

May 5, 2009

REPLY TO THE ATTENTION OF:

Mr. Jerry C. Winslow
Principal Environmental Engineer
Xcel Energy
414 Nicollet Mall (Ren. Sq. 8)
Minneapolis, Minnesota 55401

SR-6J

RE: Comments to Proposed Technical Approach to Performance Standards
Ashland/NSP Lakefront Superfund Site

Dear Mr. Winslow:

The United States Environmental Protection Agency (EPA) has completed the review of the Proposed Technical Approach Summary – Performance Standard and Cover Specifications dated April 3, 2009, submitted on behalf of Northern States Power Company (NSPW), (d.b.a. Xcel Energy) by Foth for the Ashland NSP/Lakefront site. The following are our comments.

General Comments

1. EPA is concerned with the substance changes from the March 6th to the April 3rd memorandum. For example, the March 6th memo emphasizes the development of a 2010 pilot to test potential performance standards. The pilot results would then assist in the final design. Now, the April 3rd memo seems to take a different approach, focusing on standards for the overall sediment cleanup and only mentioning pilot test once on the last page. If the pilot is essential to the process, then the focus should be on a pilot test, not the overall site cleanup. There is a cleanup goal already established for the sediment (9.5 ppm TPAH). If the pilot test cannot meet the cleanup goal, then performance standards will be established in the design to make sure the final remedy will achieve the goal.
2. Presumed residual contaminants – As was discussed on the previous technical call, all assumptions on the partitioning of contaminants from the sediment residuals presume that the post dredge contaminants are only contained in the solid phase and not in a NAPL form. The consultants and agency staff agreed that the design approach in the memo presume all NAPL has been successfully removed. This will be very important in the design of a pilot dredge approach to insure that the technology selected, the construction sequencing, and post dredge sampling can successfully manage the NAPL, water-phase and solid-phase contaminants.
3. Data gaps – All parties on the April 14th call agreed there are significant data gaps related to the design of both the performance standards and the proposed pilot project. It would be helpful for Xcel/NSPW's consultants to provide a discussion of these data gaps and a proposal for gathering the data to fill the gaps.

4. Decision tree – As was discussed on the call, the decision tree is a very simplified outline of the potential steps in a dredging project. Dredging is a complex multi-step process that can use any number of different equipment types, construction approaches, quality control, and sequence of steps. It is important that the design of the dredging process be specific to the site, the contaminants, and the desired goal. Since the memorandum is intended to assist in the development of a pilot for the overall site, it is important that the design of the pilot dredging be specific to site conditions and optimized to achieve the PRGs to the maximum extent possible.
5. Treatability studies – During the last conference call, the issue of the incorporation of past treatability studies was raised. Xcel/NSPW committed to incorporating these data into the performance standards approach. This will need to be incorporated into the next draft memorandum.
6. References cited in the memorandum – Xcel/NSPW and their consultants agreed to provide PDFs of the key literature cited in the memo. A technical evaluation of the memo and the proposed approach would be greatly assisted by copies of the cited references. Please provide EPA and WDNr copies of these references.
7. The current proposal does not address free product and does not have an upper limit on total PAHs that can be left in place and covered. Therefore, an alternate procedure for dredging that addresses these issues is included in the attached flow chart.

Specific Comments

1. **Page 2, Figure 1** – The figure left out additional sampling proposed in the March 6th memorandum and discussed in our conference calls on March 25th and April 14th. Xcel/NSPW needs to define the extent of the NAPL and debris. In addition, the phase partitioning of PAHs from the solid to the pore water should be assessed on a site specific basis. See Specific Comment #3.
2. **Page 4, Section 2, Determine groundwater advective flux** – The second paragraph identifies the shallow groundwater gradient as being 1% or .01 ft/ft., which is then used as a basis for concluding that “groundwater discharge to the bay is likely minor.” A 1% gradient is a relatively high groundwater gradient and not minor as suggested in the text. The vertical groundwater gradient under the bay is currently unknown, which is acknowledged in the memorandum and there is no information on geological structure underlying the bay. Further, the “artesian conditions” noted in the RI near shore (Kreher Park) suggests that there is a possibility of presence of an upward vertical gradient under the bay. This information is important to determine the advective flux. Therefore, a thorough evaluation and determination of upflow should be accomplished to evaluate PAH flux/mass transport.
3. **Page 5, Section 3, Develop sorption isotherms for PAHs** – The data spread shown in Figure 3 is much too large for reliable prediction of the flux from the solid to the pore

water/liquid phase. The assumption that the 90% confidence interval (CI) provides a reliable or conservative prediction is in question since the data scatter can be 1 to 2 orders of magnitude above the 90% CI line.

The site specific data were not used to develop the sorption isotherms. Examination of the data shows that for any specific concentration of Total PAH, the range of pore water PAH can be up to 3 to 4 orders of magnitude, a very high range. The distribution of specific contaminants varies greatly at MGP sites, as implied by data points. No comparison of Ashland site data is provided to show a relationship of the contaminants to the four MGP site samples. If this approach is to be used, development of site-specific data is required in order to provide data that are at all meaningful for input into any models predictive of PAH mass flux at this site.

4. **Pages 6 and 7, Section 4, Calculate sediment PAH flux/mass transport** – It is stated that the estimated effective diffusion coefficient was based upon conservative selection of a molecular diffusion coefficient and consideration of tortuosity effects. Which contaminant(s) was selected as representative of PAHs and exactly what consideration was given to tortuosity effects? Provide all equations, data, rationale, etc. that resulted in diffusion coefficient of $107 \text{ cm}^2/\text{yr}$.
5. **Pages 6 and 7, Section 4, Calculate sediment PAH flux/mass transport** – What other factors were included in calculating the relative mass flux? Was adsorption considered as a factor? What were the characteristics of the sand used for this model?
6. **Pages 6 and 7, Section 4, Calculate sediment PAH flux/mass transport** – For the examples cited, what were the time frames of these studies?
7. **Pages 6 and 7, Section 4, Calculate sediment PAH flux/mass transport** – Despite the assertion in the first sentence of this section, this analysis does not consider advective influences on the sediment PAH mass flux rate, only diffusion was modeled in this demonstration based on non-site data. Further, this section goes on to assert the assumption of “effective isolation from advection...” This is incorrect and the phrase should be removed as there has been no definitive determination of the scale or magnitude of advection effects on the sediments in the bay (See Specific Comment #2).
8. **Page 8, Section 5, Assess cover gradation and filter criteria** – This assessment neglects any consideration of advective discharge (vertical gradient) which could be considerable. Include consideration of advective discharge.
9. **Page 9, Section 6, Derive wind-wave bed shear** – The model should not only be checked against site conditions, but the model should be calibrated and sensitivity analysis should be performed.
10. **Pages 9 and 10, Sections 6 and 7** – Protection of the potential sand bed restoration layer. The text describes an approach for modeling wind-wave and ice effects on the cover.

Additional disturbance forces from propeller wash, anchor dragging and other common erosive forces must be included in the design process.

11. **Page 11, Section 8, Establish ranges** – First box should read, “Dredge to regulatory agencies agreed limits”.

If you have any questions, please contact me at (312) 886-1999.

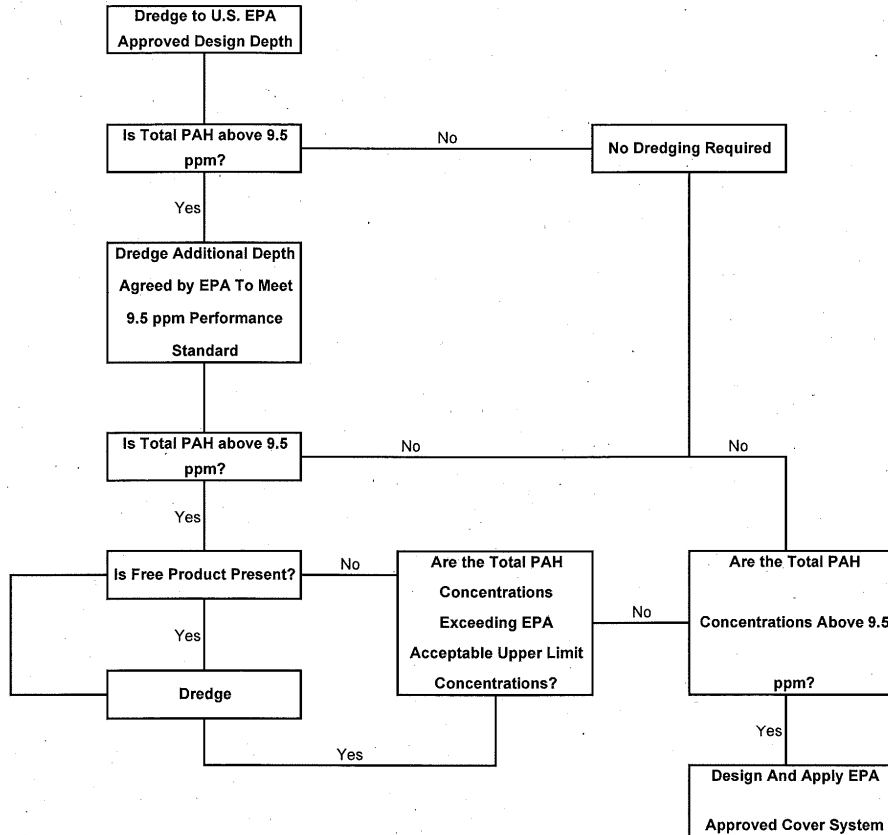
Sincerely,

A handwritten signature in black ink, reading "Scott Hansen". The signature is written in a cursive, flowing style.

Scott K. Hansen
Remedial Project Manager

cc: Jamie Dunn, WDNR
Omprakash Patel, Weston Solutions, Inc.

**Alternative Proposal For Dredging
Ashland NSP Site, Ashland, Wisconsin**



Note: For this decision making flow chart it is assumed that U.S. EPA will establish an upper limit for Total PAH concentration greater than 9.5 ppm that can be left in place and covered (following at least two dredging events). The concentrations that are higher than upper limit of concentrations established by U.S. EPA should continued to be redredged.